What citizens experience and how omni-channel could help – insights from a building permit case

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Abstract: - PURPOSE - By increasing the digitalization of commercial services citizens' expect more from public services. First of all, this study will strive to identify which problems citizens encounter when they use a complex public service: preparation of an application for a building permit. In the light of the popularity of omnichannel approaches, the study then explores how omnichannel could help to address the problems which have been identified. - METHODOLOGY - We implement the first phases of an action design science research project. We collect data both from citizens and public agencies and frame them as transparency problems. These abstract problems are then addressed by an omnichannel service provision as an abstract solution. The abstract solution is then instantiated in a design in the form of a user scenario developed in collaboration with current and future public officials. - FINDINGS - The analysis uncovers multiple transparency issues: it distinguishes between process, case, language, cross-channel, and cost transparency. One root cause of the transparency issues observed is the lack of service transparency which defines the purpose and scope of a service. We therefore recommend defining a service strategy before informational and technical aspects of an omnichannel approach can be implemented. Following this strategy, omnichannel offers public administrations unique opportunities to excel in citizens' service provision. - ORIGINALITY / VALUE - The study provides insights into how citizens view complex public services. For researchers, this study offers the conceptualization as transparency issues. Practitioners from the public administrations can also benefit from the concept and vision of omnichannel public services.

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What citizens experience and how omnichannel could help - insights from a building permit case.

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Abstract

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By increasing the digitalization of commercial services citizens' expect more from public services. First of all, this study will strive to identify which problems citizens encounter when they use a complex public service: preparation of an application for a building permit. In the light of the popularity of omnichannel approaches, the study then explores how omnichannel could help to address the problems which have been identified.

Methodology

We implement the first phases of an action design science research project. We collect data both from citizens and public agencies and frame them as transparency problems. These abstract problems are then addressed by an omnichannel service provision as an abstract solution. The abstract solution is then instantiated in a design in the form of a user scenario developed in collaboration with current and future public officials.

Findings

The analysis uncovers multiple transparency issues: it distinguishes between process, case, language, cross-channel, and cost transparency. One root cause of the transparency issues observed is the lack of service transparency which defines the purpose and scope of a service. We therefore recommend defining a service-strategy before informational and technical aspects of an omnichannel approach can be implemented. Following this strategy, omnichannel offers public administrations unique opportunities to excel in citizens' service provision.

Originality/Value

The study provides insights into how citizens view complex public services. For researchers, this study offers the conceptualization as transparency issues. Practitioners from the public administrations can also benefit from the concept and vision of omnichannel public services.

1 Introduction

Citizens consider interaction with public agencies to be a struggle. Accordingly, municipalities focused on improving their services and moved services online to make them easily accessible and customer friendly. However, studies indicate that this still does not meet the public's expectations (Dudley *et al*., 2016). They expect a courteous, seamless service delivery with minimal time and cost (Spears and Seydegart, 2001) and understandably written or oral explanations, quick reactions to requests and questions, uncomplicated procedures and process transparency in the sense of knowing the processing status (Funk, 2013; EU Commission 2019). These expectations are constantly evolving: citizens use various service provision channels when in contact with banks, insurance companies or during online shopping. They transfer expectations of service standards from those sectors to the public administration. Therefore, we formulate our first research question:

RQ1: What do citizens experience in a complex public service and where are the problems?

We used interviews and observations to address RQ1 in collaboration with five municipalities in Southern Germany. These administrations were also very interested in addressing their problems. We therefore moved on to explore potential solutions and were inspired by the retail industry. The retail industry is currently moving from multi- to omnichannel service delivery to accommodate the fact that complex or long-term service interactions may require multiple intertwined online and offline channels which are integrated across service functions in a transparent and consistent manner (Verhoef *et al*., 2015; Beck and Rygl, 2015). Thus, the second research-questions is:

RQ2: How could omnichannel help to address observed problems?

We answer the first question by detailed analyses of transparency issues in public administration. Previous studies have addressed problems citizens experience when using and deciding between various channels in contact with public agencies (Reddick, 2010, Reddick and Turner, 2012; Reddick *et al.* 2012; Baig *et al.,* 2014, Herhausen *et al*., 2015; Madsen and Kræmmergaard, 2015; Ebbers *et al.,* 2016; Madsen and Hofmann, 2019; Reddick *et al.* 2020). These analyses predominantly deal with the usability of the systems and general preferences. We reframe the problem as an information asymmetry between the public agency and the citizen. Enhancing transparency has been proved to support asymmetries' resolve (Nussbaumer, 2012). As an answer to the second research question this manuscript uses this transparency lens and input from the field to propose a concept how omnichannel approaches could contribute to solving the problems.

Researchers benefit from the conceptualization of transparency issues, their underlying causes and consequences in public sectors. They benefit further from conceptual links established between 'transparency in service provision' and 'omnichannel services' in areas so far disconnected. Before presenting and analyzing the data, we introduce related work, applied methodology and data collection.

2 Related Work

2.1 Complex E-Government Services

e-Government originally aimed at making public services easily accessible by providing digital channels. Today citizens can choose between the front office, telephone, kiosk, interactive website or smartphone apps to collect necessary information and conduct transactions. This increase in channel choices is not only convenient, but may be a burden: citizens need to choose the right channel for their purpose (Madsen and Kræmmergaard, 2015). And if multiple channels are just stacked, they experience inconsistencies in content, format and interface (Wirtz and Langer 2017). Advanced 'multichannel' services distribute information communicated over any channel to the other channels through one central case dossier.

Citizen service provision has been discussed from a variety of angles starting with singular aspects like information quality or accessibility up to multidimensional facets like the management of the service supply chain (Arlbjørn *et al*., 2011) or channel (Beck and Rygl, 2015). Research on digital divide made clear that citizens' service provision should take differences in demographics, needs and expectations into account (Helbig *et al*., 2009). Although with insight, ongoing debates come to no clear conclusion concerning best practices nor address the most urgent problems but leave agencies and citizens in constant experimental mode.

Different studies show the limitations of these experimental activities. In mid-June 2019, the EU Commission conducted investigations determining the availability and usage of e-government offers in the member states (EU Commission, 2019). According to the survey, not even every second German internet user (43 percent) would use online forms. According to "egovernment-monitor 2019" (Initiative D21, 2019), the websites and apps of authorities in Austria, Germany, and Switzerland were used primarily for general information searches, e.g. for contact data. If citizens have to solve a problem or make a decision, they prefer the phone or they visit an office (Reddick, 2010; Reddick and Anthopoulos, 2014, Rey and Medina-Moreno, 2016). It seems the citizens´ user journeys are not yet sufficiently supported with digital services (EU Commission, 2019). However, that prior research focuses on the quantitative and holistic analysis of access and usage of e-government services, without addressing the nature of the citizens' concerns, queries or tasks. In practice, there are significant differences between simple transactions (e.g. informing the municipality about moving), transactions requiring handing over physical documents (e.g. new identity cards), or complex services involving examination of documents by multiple departments and frequent interaction with citizens (e.g. obtaining building permits). Consequently, deeper analyses are necessary to understand the exact circumstances in which citizens rely on online and offline channels rather than assuming the equivalence of transactions and procedures.

The strong growth of e-commerce (e.g. in Germany (Statista, 2017)) indicates many citizens are accustomed to comprehensive online market services. Pieterson and Van Dijk (2007) have shown habit to be one of the most important channel choice drivers. Consequently, citizens approach public agencies as though they are retail or service providers (Baig *et al*., 2014; Initiative D21, 2019). However, public agencies do not live up to those expectations.

A key aspect addressed in private sector is transparency (Barwitz and Maas, 2018, Bendoly 2005, Quach et al 2016): Easy access to information on prices and conditions, in combination with mobile technologies, makes comparisons of various offers possible anytime, anywhere, thus enforcing higher price transparency. Digitization of supply chain management and delivery

tracking enforced transparency in terms of availability and traceability of goods and services. Finally, opinion sharing enhanced transparency concerning quality assessment. Private sector clients are accustomed to relying on a high level of transparency and therefore are likely to expect a similar level from public agencies. Existing literature claims that transparency in every interaction is a prerequisite for a successful transaction (Barwitz and Maas, 2018), it strengthens loyalty (Bendoly, 2005) and contributes towards moderating obvious risks. We claim that transparency also has a significant impact on multiple-channel interaction with public administration. Literature lacks sufficient evidence here.

Researchers distinguish between 'process transparency' and 'information transparency'. Process transparency is defined as "the degree of the client being able to follow and comprehend the performed activities (what constitutes an activity and why is it performed) and their succession [i.e., their sequence] in advisory" (Nussbaumer and Matter, 2011, p. 280). Information transparency "can be defined as the degree of the client being enabled to monitor and comprehend the information used as the basis of decision making and to assess their quality and suitability." (Nussbaumer *et al*., 2012a, p.4) or as " the revelation of the advisor's information base as well as showing what information is used for what purpose and with what effect" (Nussbaumer, 2012 p. 87). Cost transparency can be regarded as a special case of information transparency. It has been defined as "the client's perceived degree of information revelation regarding costs and their allocation" (Nussbaumer *et al*., 2012b, p. 349).

Transparency is particularly important in complex life situations (Giesbrecht et al. 2017, Dolata and Schwabe 2017). While pure online services have proven effective for simple administrative transactions (van Deursen and van Dijk, 2009), many issues are too complex to be fully covered by this. Citizens may not even know which questions to ask or what information to search for (Giesbrecht et al. 2017). These citizens can contact a person in public agencies who is able to provide the advice or information (Reddick and Anthopoulos, 2014). However, face to face services are expensive on both sides, e.g., the citizens might need to travel and adjust their schedule to the office hours. Consequently, citizens need to be well prepared and face to face services need to be embedded in the overall service provision. Existing literature does not provide operationalized guidance on how to implement transparent services, nor does it respond to the rising expectations of the citizens.

2.2 Omnichannel in the private sector

Against the background of an innovative and constantly improving private sector, the service provision in public agencies appears complicated and constantly outdated. We ask: what does the private sector do better? Firstly, we look at simple retail services. The retail industry moved their offers from single channel to multichannel presentation (Beck and Rygl, 2015). Multichannel management involves the design, deployment, coordination and evaluation of various customer contact points or the media on offer to enhance customer value during retail or service interactions (Neslin *et al*. 2006). Multichannel strategies vary e.g. in the number and types of channels on offer, areas of application and levels of channel interaction or integration (Beck and Rygl, 2015). These strategies emerged historically, responding to the technological development, when new retail and service provision channels were added taking advantage of the existing ones in an opportunistic manner. In general, literature acknowledges that at time that solutions were characterized by a minimal integration or semi-integration between the channels relying on, e.g., data integration (Verhoef *et al.,* 2015, Von Zhang *et al*., 2010). In an effective, integrated multichannel solution information was carried from one channel to the next assuring

that information was not lost when customers switched channels. However, channels were not linked to provide a comprehensive experience. In particular, the simultaneous use of several channels was not sufficiently supported, since one channel was not aware of what is going on in the other channels (Verhoef *et al.,* 2015). This had negative implications for the client who noticed the switches between channels and might experience the cost of channel switch (e.g., additional effort), and also for the service provider, who needed to actively maintain the interdependence between the channels (Verhoef *et al.,* 2015).

Therefore, retail services moved on to an 'omnichannel' approach focussing on the customer journey (Verhoef *et al*., 2015, p.176). Companies strive to orchestrate their information provision over several 'touchpoints', taking the history and the predicted future of the customer interaction into account. In doing so, they seamlessly integrate various physical (face-to-face interaction in a shop, home delivery, etc.) and digital channels (online, instant messaging, smartphone apps, etc.). In retail industry the opposite of 'showrooming' occurs (viz. information seeking offline and buying online), which is now referred to as 'webrooming': customers seeking information online and buying offline. Here the mobile channel (e.g. smartphone) becomes important: while looking at products in the stores customers simultaneously use their mobile device to get additional information (Verhoef *et al*., 2015). Touchpoints can also involve customer-to-customer interactions through social media as well as peer-to-peer communication. In retail, omnichannel is thus understood as a model integrating online and traditional channels in a way offering the consumer a genuine, seamless, personalized and integrated experience throughout all channels and contact points (Mirsch *et al.*, 2016). It is based on transparency of transactional and behavioural data across channels (Rey-Morena and Medina-Molina, 2016; Pieterson, 2017). While multichannel strategies were driven by new technological possibilities and expectations that organizations do get to move with the times, omnichannel builds upon deep integration between the existing channels. Instead of focusing exclusively on the portfolio of the available channels, omnichannel requires a holistic perspective of the customer journey across channels.

Research on multichannel and omnichannel services has mainly focussed on retail, i.e. the sale of simple products or services. It remains open how those concepts can be applied to complex services, where customers are regarded as co-creators of value (Payne *et al*., 2008).

2.3 Omnichannel in the public sector

While research on omnichannel strategies has so far primarily addressed retail business, there is some interest in transferring this idea to public administration. Research in the e-government and public administration domain exposes significant problems of public administrations managing service provision channels. Already in 2008, Ebbers *et al*. (2008) found that managers do not understand what citizens want and how they use multiple service channels and identified that as the key problems in satisfying citizens' expectations. They call for more extensive research and better transfer of knowledge to the communes. In addition, Madsen and Kraemmergard (2015) stress that information quality in one channel affects the usage of other channels and they point out that channel management decisions in one part of a public administration might significantly effect the workload in others. Overall, they argue that the channels should not be considered independent and that their interdependency goes far beyond channel integration and they call to further explore those interdependencies from various angles.

Following these calls, a nascent discourse on omnichannel strategies in e-government has emerged but the studies remain rare and are scattered across disciplines. In a study analyzing the current state of public service provision in Spain, Rey-Moreno and Medina-Molina (2016)

conclude that the strategy to replace in-person contact through purely online services does not work: citizens keep demanding in-person services seeing them as complementary to other channels rather than alternatives. Rey-Moreno and Medina-Molina (2016) regard an omnichannel strategy as being adequate to cover citizens' needs instead of the present loosely integrated multiple channels. They frame omnichannel as defined by three corner stones: faultless integration between all channels, transparent data visibility and a consumer-centered operative model. However, they do not illustrate how to implement them and offer only generalities why building upon those principles would eventually solve the problems of Spanish public services. Also, the description of the problems does not go beyond statistical evidence that online channels are not used as frequently as possible.

Wirtz and Langer (2017) also claim that an omnichannel approach as integrated channel strategy suits the needs of citizens better than other strategies. They differentiate by origins: in the omnichannel approach, municipalities develop and manage a coherent, holistic channel system from the beginning providing an interdependent channel structure, as opposed to the more conventional stacking of new channels chronologically on top of existing ones. Wirtz and Langer's (2017) literature-based research shows that the conventional and punctual approach has so far dominated the field but is lacking in strategic considerations, both in municipalities and sometimes even among researchers. They stress strategic considerations but arguments remain abstract and offer no operationalized suggestions for practitioners or even specific points that ought to be regarded when devising a public omnichannel strategy. Thus, it remains rather unclear to what extent the strategic perspective would help solve the problems previously described.

Finally, Pieterson (2017) offers an overview of the channel-choice literature in public services and of the strategies implemented in public employment services across Europe, indicating that there is an increasing interest in integrating or blending channels of service provision. He too, provides evidence that the most difficult challenge to an omnichannel service provision is the simultaneous integration at various levels of organizational structure (service delivery processes, data, IT systems, and organizational units). Pieterson's (2017) focus on public employment services impedes an assessment of the applicability of his findings to other public services, whether local or regional. Because of its broad scope (the whole European Union) the study provides an exhaustive report from the bird's-eye-view perspective but lacks details and practical guidance.

Researchers in the field of public administration have thus recognized the relevance of omnichannel, but available studies often lack pragmatic guidance or even an exemplary idea for deploying omnichannel strategy in a concrete area of public administration. Literature also takes a bird's-eye-view of the fact that, depending on the complexity of the issue, interaction between citizen and public agency might be very intense or only ephemeral. Furthermore, research describes the underlying problem ("why do citizens not use the new channels on offer?") only from the management perspective but does not sufficiently cover the perspective of citizens. Given that omnichannel should focus on the citizens' experience it is more than urgent to analyze which problems occur and to what extent omnichannel might be the right answer.

3 Methods and Data Collection

The intention behind this study is to identify and address real-life problems. For this, Action Design Research (Sein *et al*., 2011) provides an appropriate framework. Action Design Research (ADR) is a methodology combining the design activities (building and evaluating artefacts) and action research (intervening and evaluating interventions). Its steps include problem formulation, conducting the artefact-based intervention, evaluating it, reflection and learning,

and, finally, formalization of the learning. This manuscript focuses on problem formulation through field work and conceptualizing the problem and on specifying a potential intervention through reciprocal and user-engaged design.

The ADR results are described following the proposal of Lee *et al*., (2011):

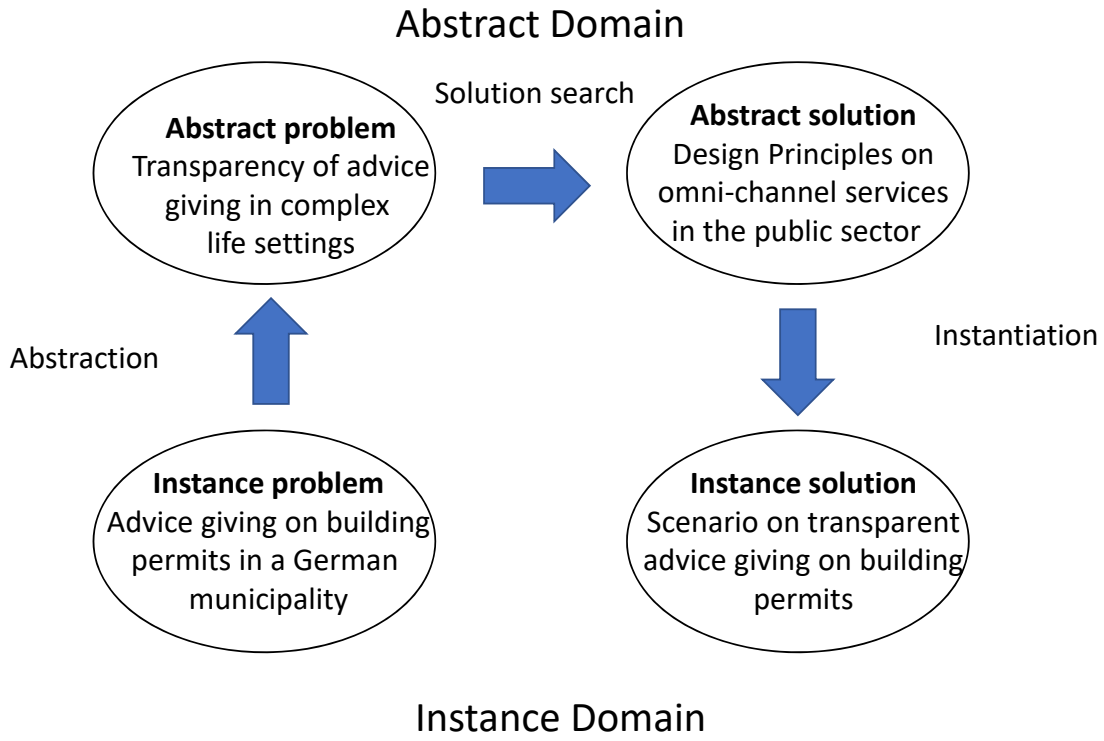

Figure 1: Design Theorizing Framework

The authors distinguish between the concrete instance domain where real problems can be observed and solutions be tested and the abstract domain, in which theorizing and scientific discourse take place. Our generalizable 'abstract problem' (Lee *et al*., 2011) is the transparency of the advice given citizens in complex life settings. It is instantiated as the acquisition of a building permit in a Southern German state. The example of building permits was selected because building permits are a relevant complex problem for many citizens all over the world. All citizens need such a permit when they want to build or substantially change their house. The service is offered by all German municipalities and its neighboring countries. The public discourse portrays building permit processes as non-transparent or arbitrary and simultaneously time-consuming. The research was triggered by one city approaching the first author. They asked for help in redesigning their building permit process. Furthermore, when conducting an informal pre-study, we received signs of interest from four other cooperating municipalities. These five municipalities are all interested in digitizing their business areas and are working on it. Three are pioneers through specific research projects, the others are average in the field of e-government. All municipalities offer multichannel solutions for the building permit, none of them had an omnichannel solution. The instance problem is condensed in a problem scenario (Rosson and Carrol, 2002), describing how *Jane* tries to get a building permit in a German city.

We searched for a generalizable 'abstract solution' (Lee *et al*., 2011) in the area of omnichannel services because a) the participating municipalities were interested in that, b) the choice appeared timely due to the diffusion of omnichannel services in retail and c) the scarcity of omnichannel research in the public sector made it scientifically promising. The abstract solution is presented as a set of design principles and is instantiated in an activity scenario (Rosson and Carrol, 2002).

The analysis of the instance problem was conducted in phases with different foci: 1. 'customer experiences', 2. 'public administration's perspective' and 3. customer journey (Table I).

Table I: Steps, methods, and products of the problem analysis

Study Steps	Methods	Products	n
Phase I – customer experiences			
Step I: Analysis of online self-service	Interviews with citizens and architects (41 field researchers)	Requirements of the target group. Search methods, -terms, -goals and -paths	41
	Development of the scenario "I want to build a dormer!"	Scenario incl. search terms, starting point, etc. Questionnaires and criteria grid for documentation	
	Interviews with citizens (45 field researchers)	Channel choice	47
	Cognitive walk-through (43 field researchers)	Record of experiences and problems identified during the process	43
Step II: Analysis of telephone service	Mystery calls (43 field searchers)	Record of experiences and problems identified during the process	46
Step III: Analysis of On-site service	Mystery shopping (48 field researchers)	Record of experiences and problems identified during the process	47
Phase II – public administration's perspective			
Step IV: Analysis of on - site service	Participatory observations / shadowing in teams of 3 to 4 field researchers	Record of experiences and problems identified observing in six different cities	12
	Interviews (6 field researchers)	Documentation of interviews with public employees and citizens	5
Phase III – customer journey			
Step V: Design: customer journey and tools	Design Workshops (61 persons altogether)	Two prototypes for the whole process (pre-purchase and purchase phase)	2
Step VI: Evaluation of tools	Evaluation of the two prototypes (ten citizens)	Prototype evaluations	10

The first phase started with a preparatory step involving 41 semi-structured interviews with citizens and architects, i.e., with the stakeholders involved in obtaining building permits. 41 student researchers conducted the interviews as part of their education in public administration. Supervised by two senior researchers they analyzed the steps necessary to obtain a building permit. The interviews were transcribed in the intelligent-verbatim manner (Hickley, 2016), coded for statements concerning search-methods, -terms, -goals, -paths and analyzed as a single

data set. The interview results helped to specify the problem scenario '*Jane*' (Rosson and Carrol, 2002), and to structure the subsequent steps according to the path envisioned by the informants.

For the subsequent steps in phase one, 43 field researchers positioned themselves as *Jane* being a citizen and tried to follow the path identified in the interviews. They started with online self-service, then telephone calls and on to participating in an on-site service in 47 municipalities. Some participants had to conduct several calls or go to more than one appointment, leading to a slightly higher *n* (cf. Table I). When using self-service and online tools, they enacted the role of *Jane*. During the calls and on-site appointments, they followed the mystery shopping approach (van der Wiele *et al*., 2005) taking the situation of *Jane* as a starting point.

The data was collected in multiple ways: researchers composing chronological field notes as well as using a matrix for the service assessment. The researchers followed approaches typical for ethnomethodologically informed research along the phases of a customer journey (Nenonen *et al*., 2008; van der Wiele *et al*., 2005; Wilson, 2001). Based on the data collected and on observations, the field researchers were asked to evaluate the status-quo customer experience across all channels (Lemon and Verhoef, 2016).

The second phase of the problem analysis focused on analysing the status quo from the perspective of public administration. Twelve field researchers were engaged for 1 to 2 days in an on-site observation of the work within the building control authorities or departments in five cities in Southern Germany. This included five semi-structured interviews. The municipalities involved selected the responsible members of their personnel and arranged the interviews. The data was collected in the form of chronological notes. The interviews were transcribed and analyzed focussing on the challenges identified in the previous step and using the following meta-categories to structure the coding and the analysis: problems, work steps and activities, tools used, and contact partners involved.

The third phase of the study focused on envisioned customers' experience. We applied 'customer-journeys' (Nenonen *et al*., 2008) to summarize the perspectives collected in the previous steps and used them as a starting point for designing the future interaction between a citizen and the municipality. Two workshops were run with 42 student researchers representing the citizens, 12 public employees and 9 architects who often play the role of intermediaries and are key stakeholders when it comes to obtaining a building permit. The participants worked together in mixed groups to come up with ideas on how to improve the customer journey. They were equally split into 6 teams each comprising approx. 10 people. The workshops used various prototyping and reflection techniques from Design Thinking (Dolata and Schwabe, 2016) (empathy prototyping, design fiction, rapid prototyping, anonymous and non-anonymous feedback) to include input from various stakeholders. The key parts of the workshops (with presentations of the prototypes, feedback rounds) were recorded and analyzed for common topics emerging in the prototypes and common themes appearing in the feedback. Towards the end of the workshop each team developed a vision of the new customer journey.

Thus, the first two phases of the study provide an empirical foundation for research question 1: "What do citizens experience in a complex public service, what and where are the problems?" The subsequent design activities in the third phase give an empirical foundation for research question 2: "How can omnichannel help to address problems which have been observed?".

4 Results

The results are presented in a problem scenario with *Jane*. The description of the scenario is interrupted by sections presenting supportive quantitative data from the field researchers, by explanations gathered from the observations and interviews with the municipal public agents (Phase II of the study) and by ideas how to improve this situation from the design workshops.

Jane wants to improve her house by adding a dormer that enlarges one of the second-floor rooms. She starts by asking herself whether she is allowed to build the dormer and, if so, what she has to do to acquire the formal building permit. She understands that she needs information about the building regulations and the approval procedure. Her first step is to visit the municipality website.

Jane searches the website by turning to the subpages on building and using the keyword search. Since the information is not easy to find, she explores most of the municipality website without finding clear answers to her questions. She can´t find a clear statement in which neighbourhoods or on what kind of houses dormers are allowed. Since there is no general information on whether dormers are allowed or not, Jane decides to find out by applying for one. It takes her quite some time and lots of clicks on the website to realize that she can´t find out how to start the application process. Neither does there seem to be a way to start the process online nor are there any clear instructions at all on what to do. All she finds are texts on building regulations and application procedures with some technical terms which she does not understand. And she cannot figure out if and how they apply to her case.

Only 4% of the analyzed municipalities publish land development plans on their websites. Therefore, the basic information on content is rarely accessible without a personal request or without knowledge of the application process. If the website contains crucial information then some explanations include technical language which is to no use for the average citizen.

Most of the municipalities do not offer a structured approach to application procedures. Although they extensively searched on the administrations´ websites, 82% of the field researchers did not learn the steps of how to apply for a building permit. Municipalities only offer general information which is not matched to a specific task. These texts are difficult to comprehend, even though municipalities and the state agencies go to great expense to present their information in a citizen friendly language (e.g. service-bw.de). However, these texts are still formulated in a legally compliant manner and still contain legal formulations which the user cannot cope with. Only 4% of the municipalities offer explanations about specific terms to help the user assess the information.

The administration explains this as follows: There are strict legal procedures on how to acquire permits and these are basic knowledge to the experts on both sides i. e. public agents at the municipality and architects, but this knowledge is not shared with citizens on the website. This is mainly due to the fact that the procedures differ greatly depending on their specific objectives and are therefore not easy to describe without formal language and technical details. But breaking this down to user friendly language could render them legally vulnerable. Therefore, municipalities refrain from this step. According to participants of design workshops, flowcharts, graphics, audio explanations or videos would help to explain complex issues augmenting the currently purely textual explanations.

By now Jane is quite sure that she needs to file an application. She navigates to the subsite of the municipality´s website, where all application forms can be downloaded. Among this vast

amount of forms unfortunately there are several concerning building applications and Jane struggles to find the right one.

One more thing worries her: If she has to file an application to get started, will she be charged before she finds out if she can even build at all?

Many municipalities pool all the forms in one subsite. This makes it easy to keep track of the forms and keep them updated - but the explanatory information is mainly on another municipal website or on the state website (Service BW.de) and therefore not directly linked to the forms. Since the forms are kept in a separate place on the municipal website, the information on fees are either mentioned on a different subsite or not at all.

If all forms are presented on a separate website the applicant first needs to find them and secondly needs specific knowledge to choose the correct form. This requires detailed knowledge about the procedures which neither the municipal nor the connected state website is able to offer. Therefore, neither the procedure nor the costs involved become transparent to the citizen. In the design workshops, participants proposed that forms could better be placed in context with the information to the application procedure. The description of the whole procedure should include information on all fees that apply to each step and should be comprehensible to the average citizen.

All Jane has found so far are two different application forms and some explanatory texts which she is not able to match to her situation. She therefore decides to call the building authorities. The website offers no specific number and so she calls the central number and asks to be connected to the building department. Jane states her problem and asks which of the forms apply to her project and if building a dormer is possible at all. The public agent cannot be sure that he and Jane are talking about the same forms. But he does not offer to help Jane turn to the form he has in mind. Nor does he look up her property in the land development plan to answer her question whether upgrading Jane´s house with a dormer is at all possible. He only explains building regulations in general instead of surveying Jane's project. The task of matching this information with the actual case is back with Jane. Since the public agent has only given her general information, he does not take minutes of the conversation. No information Jane has presented to explain her project is recorded and filed within the administration.

Public agents refuse to give information over the phone that could be interpreted as legally binding. They therefore only explain the situation in general and let the applicants draw their own conclusions. It is easiest for them if they do not look at the specific case at all. 80% of the public agents acted like that and did not ask for any details of the case. No public agent made any statement about whether building a dormer is allowed or not, nor even about the conditions under which building a dormer is usually allowed. Due to the non-provision of this information, 73% of the telephone conversations made by the field researchers left questions unanswered.

Public agents explain: They lack links across channels. Specifically, via telephone the public servant cannot affirm the correct choice of a form on the internet. Furthermore, any information to the specific project can be interpreted as legally binding; therefore they can only give general information which may be legally correct but does not answer the citizens' question.

The design workshop participants proposed a direct link from the website to an official's phone number. It would ensure that the applicant has the form in question still at hand when talking to him/her. One further step would be an integrated website allowing citizens and officials to share a view of the website while talking on the phone. If the official can learn about the inquiry

in advance, he could be prepared e.g. by consulting land development plans and legal texts, and would be more confident when giving information about the specific project.

Jane is disappointed that by talking to a public agent she didn´t acquire more personalized information than with her own internet search. She decides to visit the municipality´s service center. The first person she talks to tries to send her away by telling her to make an appointment or send an e-mail. But she is persistent and asks the way to the building department in order to talk to a public agent there. First, she wants to know if it is possible to build the dormer and then, how to proceed. The public agent cannot tell her if it is permissible in her neighborhood to alter buildings by adding a dormer but at least he lets Jane explain her plans. Given this information he explains the legal aspects using a land development plan and the construction regulations. He also points out the correct form and describes in detail how to fill it in and tells her of the subsequent steps. Still wondering if an application is worthwhile at all, Jane hopes that she can memorize all the procedural information the public agent has given her.

Just as on the phone, public agents are reluctant to give information that could be legally binding. Personnel at the desk and first level support are not able and not authorized to do so and even specialists are reluctant to give ad hoc statements. 6% of the municipalities sent applicants back without a consultation. In the consultations that did take place 75% of the public agents used land development plans to explain legal matters but in less than 20% of the municipalities did a public agent look at the specific case to find out if an application was promising. The others only informed the applicant about the procedures. At the end of the visits only 13 % of the field researchers stated that all of their questions had been clarified.

Public agents explain: Obviously a lack of knowledge and authorization prevents lower ranking officials from giving information on specific cases. Specialists don´t have the resources to deal in person with citizens´ concerns. If it comes to in-depth explanations, officials are glad if they can talk to experts e.g. architects. One of the chief officers interviewed said: “I don’t want to talk to citizens. I only want to talk to architects. They know their business and understand what to do”. As the application has not yet been officially started, no dossier has been created. But some officials keep records of questions and answers in an Excel or Word document in case a citizen comes back.

The design workshop participants thought that better information resources would empower public agents to give more specific and correct information to the applicant. Easy digital access to land development plans as well as arial photos and building restrictions matched to land registries would save them time and effort and ensure an efficient information-giving procedure. Recordings of their explanations would ensure that the applicants don’t forget crucial information, can reference it in future interactions with the administration or may not have to come back for further consultations at all.

5 Discussion

The discussion uses transparency as a concept to analyze the specific case linking the empirical insights to the literature on service problems and to omnichannel as a potential solution. Answering both research questions our paper goes beyond the existing literature on omni-channel in public administration by linking various notions of transparency to the shortcomings of particular channels.

5.1 Transparency issues

Following the literature, the analysis distinguishes between information transparency and process transparency.

Information transparency

The lack of information transparency (Nussbaumer *et al*., 2012a) is the most important issue. To recapitulate: Information transparency describes the extent to which the information provided enables citizens to "monitor and comprehend the information used as the basis of decision making and to assess their quality and suitability." (Nussbaumer *et al*., 2012a, p.4) and "what information is used for what purpose and with what effect" (Nussbaumer *et al*., 2012b, p. 349). The case data provides so many ways of manifestation of information intransparency that it is too diverse to consider as one: missing information, poorly structured and incomprehensible information etc. have different root causes and consequences. Therefore, we distinguish between four sub-classes of information transparency: language, case, cross-channel, and cost transparency. How do they manifest themselves? Why do they exist? The data offers interesting insights:

a) Language Transparency: 'Language transparency' enables laymen to understand relevant aspects of experts' statements. But very often citizens do not understand the legal and administrative language used to inform and guide them (Mestre, 2006). Language intransparency is as old as the administration. In the past, the public sector has made great efforts but with limited success (e.g. Service BW 2020) to present information in a comprehensible way. The continuing language intransparency suggests an alternative view: It may not be rooted in insufficient information provision but in insufficient 'vocabulary work': Dolata and Schwabe (2019) observe that giving good advice involves 'vocabulary work' to continuously translate technical terms into citizens' language. The aim of the advisor is not simply to circumvent technical terms (the precision provided by them is frequently necessary for a comprehensive understanding), but to translate and use them in a way that they can be adopted by citizens as part of their empowerment (Reddick and Turner, 2012; Dolata and Schwabe, 2019). This is common practice for good advisors that can be augmented by good tools (Giesbrecht *et al*., 2017) structuring and visualizing information but relying on human actors. The public employees we observed appeared willing and motivated to engage in vocabulary work but particularly the first line of service lacked the skills while the building experts were firmly restricted by organizational rules.

b) Case Transparency: 'Case transparency' is achieved if citizens can match the information provided to their individual living situation, i.e. to instantiate the abstract information provided. In the building permit case, even after encountering several touch-points, citizens still do not know whether they are allowed to alter their house. Public employees may or may not be aware that citizens experience case intransparency - feedback loops that create this awareness are missing. The analysis of municipal public administrations shows, that this information intransparency is by design: building regulations are so complex that public administrations do not see an efficient way to comprehensively provide citizens with information without running into legal problems (e.g. if citizens sue the administration due to preliminary information). They prefer to involve building experts e.g. architects representing citizens even if this leads to significant costs for citizens. However, this fact again is largely hidden from citizens, so that we summarize the root causes of these case transparency issues as 'service intransparency'. We

define 'service transparency' as making the purpose and scope of service provision understandable for citizens. Conflicts in the aims (here: citizens want comprehensive information before the application and the administration wants to have efficient processes) or the organizational issues are typical root causes for service intransparency.

Case intransparency is one of the classical issues observed in the private sector, e.g. in banks (Nussbaumer *et al*., 2012a) or in travel agencies (Novak, 2009). However, the underlying reasons are different. In commercial settings, information asymmetry is part of business models and is carefully managed. Information transparency resolves the principal-agent-conflict and creates trust. At the same time, it threatens income streams that commercial companies have relied upon for a long time. In the public sector, there is no principal-agent conflict and citizens trust the bureaucracy. Here the strive for efficiency and avoiding legal problems are the root causes for case intransparency.

c) Cross-Channel Transparency: 'Cross-channel transparency' enables citizens to link information items provided through different channels. Data indicates two reasons for cross-channel intransparency: 1. The language, structure or style of the presentations differ greatly so that citizens cannot integrate them into a complete picture. 2. Information gets lost when channels are switched and citizens can only use one channel at a time. This seriously impedes free channel-choice (Pieterson and Van Dijk, 2007; Madsen and Kræmmergaard, 2015). The root cause of cross-channel intransparency is poor information integration and insufficient tool support.

d) Cost-Transparency: 'Cost-transparency' has been defined as "the client's perceived degree of information revelation regarding costs and their allocation" (Nussbaumer *et al*., 2012b, p. 349). In the building permit case, citizens do not know which services are subject to a fee and how high that might be. Costs include fees of the primary process (i.e. receiving a building permit) and expenses for the preceding process of gathering sufficient information to make an informed decision. As the primary process costs are determined by a (complex) set of fees, the lack of 'cost transparency' (Nussbaumer *et al*. 2012b) of the decision information is again rooted in service intransparency.

Looking at the traditional principles of German administration, the lack of information transparency appears strange because the law requires administrations to ensure that status of a filed case is always transparent (GGO des Bundes, 12 II). This implies a structured information filing. However, regarding building permits, dossiers are only opened once the citizen files an application, i.e. after information gathering und decision making. Citizen-oriented local administrations may want to rethink when opening a case or whether creating some light-weight version. And this case should then include relevant information across all customer touchpoints (Reddick, 2011).

Process transparency

'Process transparency' is defined as "the degree of the client being able to follow and comprehend the performed activities (what constitutes an activity and why is it performed) and their succession [i.e., their sequence] in advisory" (Nussbaumer and Matter, 2011, p. 280). Similar to the issues of information intransparency some process transparency issues are 'by design'. The local administrations make great efforts to create transparency in the primary process: the 'stations' which a citizen passes through explain in increasing detail what they have to do in order to receive a building permit. However, the preceding process of coming to a decision about applying for a building permit is less transparent. Local administrations follow a hidden

agenda: while on the surface, citizens are informed in which steps they can find information themselves(!), they are nudged into involving an expert, e.g. architect, if they want to receive personalized information. Thus, service intransparency is also hampering process transparency. There is a deeper reason for the different treatment of the primary application process and the preceding information process. The application procedure is defined by law. Here, 'procedural transparency' enables citizens to understand procedural rules prescribed by law, why they exist and how they are implemented in business processes. The preceding information process is not prescribed by law. Therefore, administrations have more freedom to implement them. In such cases we talk of 'business process transparency'. Business process transparency enables citizens to follow and comprehend business processes. For the citizens, it does not make much difference if intransparency is rooted in law or solely in business. But local administrations are bound by procedures and have (some) freedom to implement business processes. Procedural transparency is a way to transmit the legal background to the citizens.

Process transparency is frequently hampered by poorly co-ordinated information sources: Process descriptions do not only stop at the border of a channel but they are also limited to the borders of the administration responsible for providing information. For example, the website analysis shows that processes become unclear when information provision switches from the local administration to the state. The root cause for this is the independence of the different administrative levels in Germany. The State of Baden-Württemberg, in which the local administrations are located, has spent significant money [i.e. a double digit million amount of Euros] to provide integrated coherent information but the results of this study indicate only partial success.

An analysis of a typical customer journey shows that those transparency problems do not occur in isolation but rather cause one another. Two examples: accustomed to informing themselves first of all on the internet or clarifying the first questions via a short telephone call, citizens are not aware that they can only obtain very general information (= service intransparency). For example, when public agents tell them, "You have to file a building permit application," they don't know that there are several and in the end, they don't know which one they need (= process intransparency). Another customer journey may encounter language intransparency on a website. They visit the local administration to ask for an explanation and in switching the channel lose all the information gathered so far (cross- channel intransparency).

Table II summarizes the problems observed in the field and conceptualizes them as transparency issues.

Table II: Citizens' experiences and transparency problems

Information and advice seeking			
	Citizens' experience	**Cause of problems**	**Public Administrations perspective**
Website	Information includes specific legal terms and no additional explanations of information to help the user asses the information	language intransparency	Avoid legal vulnerability
	Information is not provided (e.g. some municipalities do not explain the fee structure and give no hints about additional costs; 4 % provided land development plans)	Cost intransparency service intransparency	Increase efficiency (wish to work with experts and to avoid long explanations to laymen)
	General information is given without help to transfer it to the own case or to personalize it	service intransparency	Challenge to explain all

	(e.g. which form is to use and why?)	case intransparency	possibilities in accordance to the specific objective of the citizen
	Citizens need previous knowledge about building applications and the process to be able to use the exact keywords to find the information needed	language intransparency service intransparency	Challenge to switch to a citizen centered perspective
	No structured approach is provided how to apply for a building permission	process intransparency	Avoid danger of legal binding
Phone	General information is given without little to nothing help to transfer it to the own case or to personalize it (e.g. citizens are told to use the website, but without detailed information about which one and about keywords)	service intransparency case intransparency cost intransparency	Avoid danger of legal binding and legal vulnerability
	Citizens need previous knowledge about building applications and the process to be able to ask the "right" questions	language intransparency service intransparency	Challenge to switch to a citizen centered perspective
On - site	Citizens have to explain their concern when changing the channel of communication	channel intransparency	No information about the previous steps of the citizen are stored for further advice
	The service depends on the employee (e.g. general information is given with little help to transfer it to the own case or to personalize it i.e. copy of the land development plan, or no help is given i.e. they are told to make an appointment with the specialist or to hire an architect)	service intransparency case intransparency cost intransparency	Avoid danger of legal binding and legal vulnerability First level support personnel is not authorized or does not have the knowledge to help the applicant

5.2 How can Omnichannel help?

Omnichannel strives to provide commerce and business customers with convenient and transparent information. How can this concept be transferred to public administration? The analysis above indicates that very little will actually be achieved without sufficient service transparency. Thus, we conclude that public administrations need an omnichannel strategy resulting in service transparency. This omnichannel strategy should describe which kind of information should be provided for which purpose at what cost. Instead of trying to be comprehensive on the surface (and then failing due to intended service intransparency and hidden agendas), a citizen-oriented omnichannel strategy should focus on identifying areas where the administration can transparently provide service, content and procedural information.

In the case of a building permit, a consistent omnichannel strategy should address several key points to cope with issues lacking in transparency. The local administration should clearly distinguish between cases where a citizen needs an architect to even make a decision whether they have to apply or not.[1] It should also ensure that the choice between the different information services and the need and cost for paid services offered by the public administration is made transparent. Compared to service provision in the private sector, the public sector has serious

[1] Public administrations move in this direction by offering stage applications. Here the different aspects of an application are decided in separate steps so that citizens can later base application steps on earlier partial decisions. In practice, these staged applications have their own transparency issues that are beyond the scope of this paper.

legal constraints in the information it can provide and its information integration. Organizing for legal compliance is a major challenge. This strategy can lay the strategic basis for true information- and process transparency.

Once an omnichannel strategy has been formulated, an integrated information base has to be created. This information base should cover (permitted) information collected across all channels and internal information systems (Reddick, 2011; Barwitz and Maas, 2018). This approach imitates modern CRM-concepts known in business (Herhausen *et al*., 2015), as they have been discussed in citizen relationship management literature (Reddick, 2011). Compliance with GDPR requires either opt-in by citizens or a clear focus on what is needed for the purpose of the specific case. On the organizational side, this requires opening a 'file' for a citizen's request which is already in the information gathering phase rather than only when an application has been filed. Public officers need to be empowered by training and suitable technology (Giesbrecht *et al*., 2017, Dolata and Schwabe, 2019), to provide good services and to engage in co-creation of value (Payne *et al*., 2008, Dolata and Schwabe, 2017). This integrated information base lays the informational and organizational basis for true information- and process transparency.

Once the strategic and informational base has been laid, administrations can become creative in providing tools for service provision. If one looks superficially at the analyzed problems, an omnichannel concept may not be that important. Wouldn't it be better, if the administrations would just fix their website and improve the content? Yet, a second look tells a different story: the transparency issues are so widespread and diverse that any citizen may at any time need access to another channel: it is not just the obvious case of information getting lost when switching between channels (= channel intransparency). While studying a local administration's website, citizens may not understand a term (= language intransparency) and may want to ask a question, e.g. on a blog. If they cannot match the abstract description to their individual case (= case intransparency), they may want to take the pieces of information they have collected on the website so far to a face-to-face meeting and update them during the meeting for further study at home. And if they do not find cost information (= cost intransparency), a co-browsing session may help them find it. This means, citizens need guidance and help that can be found in another channel at any time.

If municipalities improve their websites and their internal services, this problem does not go away: new improved information (e.g. like the much better content on permissible buildings in England (Borough of Poole, 2018)) raises new questions while citizens are so diverse in their knowledge and digital skills that complete coverage from only one channel is impossible for complex matters. Therefore, administrations should focus on creating one comprehensive personalized service, where each channel contributes what it is best at, where channels are linked to one another and where information is seamlessly moved between channels (Beck and Rygl, 2015; Mirsch *et al.*, 2016; Rey and Medina-Molina, 2016; Pieterson; 2017). And this is what omnichannel is all about.

While the basic ideas (e.g. seamless integration of channels (Verhoef *et al*., 2015)) are similar to omnichannel approaches in retail there are significant differences: retailers use omnichannel techniques to proactively address clients. Ultimately, they want to nudge them into consuming products or services. Predictions of intent and behaviour are therefore important. The products and services can be quite simple, while from the customer side, omnichannel services primarily provide convenience (BigCommerce 2018). Public administrations have no intention of selling

something or nudging citizens into filing a building application. Therefore, the prediction of intent and behaviour is less important. Products and services can be complex and the intention then is to increase transparency to empower citizens and public officials to jointly create value (Giesbrecht *et al*., 2017).

We can condense these insights into three generic design principles for public omnichannel services:

DP1: Integrate channels in a way that citizens can seek guidance or help in other channels in cases of information or process intransparency.

In the scenario below the citizen can ask questions via chat box when stuck while searching the website of a local administration.

DP2: Provide citizens with tools that allow them to carry information and its context from one channel to another in order to improve cross-channel transparency.

In the scenario below the citizen is offered a "note book" to take notes while searching on the web.

DP3: Design this approach for simultaneous use of several channels to improve case transparency.

In the scenario below the citizen searching for information on a smartphone receives the same visualization of information as the public agent on a computer display.

The activity scenario (Rosson and Carroll, 2002) of 'Jane' illustrates how the design principles can be instantiated using emerging information technology.

Entering the homepage of City Lalabue, Jane immediately notices the navigation bar with the terms '*citizen / tourist / entrepreneur*' *and next to it a search field and a button with a question-mark-icon to start online assistance. She clicks on the question-mark and immediately the online assistant,* '*James*', *offers a list of support services Jane can start by marking the box beside each issue. She clicks on* '*voice command*', '*guidance through the webpages*', '*hints about terms*' *and* '*documentation*' *as well as* '*personalization of information*'. *James asks what she is looking for and Jane answers, "I want to build a dormer". She is immediately asked about the address where she wants to build a dormer. On giving the address, a building plan and relevant information is offered. Jane reads that it is not yet allowed to build a dormer but that she can apply for an exception. Behind the word* '*exception*' *an icon of a form is shown but she doesn't immediately notice it. So, she asks for* '*background information*'. *Another screen opens offering text and a checklist of the steps how to submit an application and a pop-up window with the hint "If building a dormer, you can apply directly for an exception". Since Jane doesn't have the time to go into detail, she clicks on the documentation-button and enters her mobile phone number to store/send the information gathered.*

The next day on her way home, Jane decides spontaneously to enter the public service centre for building issues. She is lucky because there is no queue and Mr. Miller, the public servant, is immediately available. She tells him about her wish to build a dormer and that she has got stuck at the point '*apply for an exception*'. *Mr. Miller asks for the building-plot no. and keys it into his system to find what information Jane already has and what is missing. He explains which dormers are possible and shows her* '*visions*' *by using a planning 3-D-Software. He is able to explain why the dormer favoured by Jane doesn't match the townscape and points to*

alternatives. Jane googles right away about the details such as building time and costs of this kind of dormer on her mobile and adds this information to the file which she had already created after the internet search. She thanks Mr. Miller and goes home – now knowing what she is looking for. She wants to think it over and then decide.

Since Mr. Miller has sent the information to Jane including the link to the right application form, Jane clicks on it the following week and the application form opens. Some fields were already pre-filled with the information she entered before. She struggles with one question and clicks again on the question-mark-button to start 'James', the online assistant. Automatically a pull-down menu starts with three options: 'start online chat with public servant, start phone call now, make an appointment' Jane wants to call Mr. Miller for detailed information and clicks on the phone-icon. Since the information is already available to the system (based on the building plot no.) Mr. Miller is called, answers the phone and then her questions. In the end, Jane wants to make an appointment to hand in the building permit application. She clicks on 'appointment' and James opens a calendar from the public service centre for Jane to choose a date. After she has chosen a date, Jane wants to finish and when she says "good-bye" James asks, where to send the session minutes. She now decides to get them via email, says so, and leaves the homepage.

5.3 Research Contribution

Identifying transparency as the leading concern during the transformation towards an omnichannel strategy for public administration is a big leap towards establishing actionable guidance for managers and officials. Whereas the previous literature based on statistical data or broad surveys suggested that a potential solution to the problems of many public agencies or municipalities might be omnichannel (Rey-Moreno and Medina-Molina, 2016; Wirtz and Langer 2017; Pieterson 2017), this study points to an issue that needs special attention: transparency. Since this has been extensively studied in past literature (Bendoly *et al.,* 2005; Barwitz and Maas, 2018; Quach *et al*., 2016; Nussbaumer *et al*., 2012a), it is possible to establish guidance for enhancing transparency by means of an omnichannel approach. This directs the efforts providing a measurable quality for evaluation. Furthermore, because of its focus on a complex case (a building permit) and the consequent use of the citizen's perspective as the primary lens of analysis, this study complements previous insights which were based, primarily, on bird's-eye-view observations of channel choices and their usage (Rey-Moreno and Medina-Molina, 2016; Wirtz and Langer, 2017; Pieterson 2017).

This study follows the calls of Ebbers *et al*. (2008) for the exposure of the citizens' perspective, their intentions, and obstacles that prevent them from achieving satisfaction. The current study identifies the various sorts of transparency issues as the key aspects that limit the performance of citizens and generates additional workload for the public agencies. It also responds to the call of Madsen and Kræmmergard (2015) to study the interdependencies between channels. In this regard, the current study provides evidence that deficiencies of one channel are not simply covered by the advantages of another. Because channel switching costs are high and inconsistency between channels generates additional confusion, the citizen might lose confidence in the public administration altogether. We conclude that municipalities and public agencies require a consistent and well-designed omnichannel strategy instead of following the practice of simply adding new channels to their channel portfolio as was often the case in the past (Wirtz and Langer, 2017; Verhoef *et al.;* 2015; Von Zhang *et al*., 2010).

6 Conclusions and Limitations

The research results are relevant both for research and practice: researchers can benefit from the conceptualization of service transparency in the public sector. We extend prior research that focussed primarily on face-to-face interaction (e.g. Nussbaumer *et al*., 2012a). Information transparency and process transparency provide a sufficient instrument to analyze strategies, practices and tool support. An omnichannel perspective covering a whole customer journey requires more refined concepts. For these we distinguish between four subclasses of information transparency: 1. *Case transparency* covering the application of generic information for a specific case 2. *Cost transparency* addressing the costs related to decision making should also be made transparent for a specific case 3. *Language transparency* indicates how well expert language is made understandable to the layman and 4. *Cross-Channel transparency* shows how well information is preserved across channel boundaries. We also show how the notion of *process transparency* can be expanded to whole citizen journeys. Process transparency has two subclasses: *procedural transparency* (explaining the legal basis) and *business process transparency* (making the activities and their sequence clear). An interesting point is the lack of strategic positioning of the service. It results in *service intransparency*, i.e. the unawareness of a service's purpose and scope. We show that this is a root cause of the transparency issues.

This study has not only described classes and subclasses of transparency but also used them to provide a rich analysis of their causes and their consequences. Some of them are unique to the public sector, some can also be applied to other sectors. The next step could be a more formal, measurable specification of those concepts and their relationships in a model of service transparency issues. Once that happens, more data in organizations outside Southern Germany and outside the building permit domain should be collected to validate the insight. Such a study could make the results more general and would address a limitation of our current study: The field work was conducted by students who have majoring in public administration and e-government. They are very young (between 18 and 25), very technology-savy and they have probably never applied for a building permit (however, this is quite typical for citizens, too). So, our findings may be biased, but probably pro public administration.

Deep and novel insights to generic problems are already important contributions to Design Research (Peffers *et al*., 2007). This paper goes one step further: we show how the generic problem can be solved by the generic solution omnichannelling. We use a scenario to demonstrate how it can be instantiated. The next obvious step would be to implement the solution and come up with more refined design principles. The analysis already makes it clear that new technology is only one part of such a solution to the problem. A solution also requires a truely strategic positioning of the service and a new approach to data management. This insight may not only be interesting for the e-government literature but also for omnichannel researchers.

The paper also offers practical insights for public administrations:

The results show that despite efforts to become more citizen-friendly, public administration cannot achieve its goals as long as it focuses on efficiency and legal compliance and fails to recognise the transparency problems which citizens now experience. Addressing transparency problems requires a clear strategy that clarifies the purpose and scope of a service. Also, it requires a data integration concept reaching over all channels. Here, omnichannel experiences from the commercial organizations can inspire but their implementation is limited by data protection laws and is significantly more challenging for complex public services than for simple

retail services. Advances in technology provide a continuous flow of innovative ideas which challenge assumptions on what services or dossiers are, raising the expectations of citizens and providing administrations with an opportunity to excel. The omnichannel service provision is one such opportunity. The scenario developed in this study provides administrations with a vision of where the future of public services lay. And as the vision was co-created with current and future public servants, we are confident that some aspect will soon be reality.

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